are smaller and less variable than the non-conjugants in the same cultures.

2. This difference is only a temporary physiological one, and has no permanent effect on the stock, since the small conjugants grow after separation until as large as their larger relatives.

3. There is a definite correlation in size between the members of pairs,—larger mating with larger, and smaller with smaller. This tends to prevent crossing of species of different size, and of the different sized races of the same species,—and thus to keep the strains distinct and to preserve the existing differentiations.

4. Owing possibly to the slower fission of the daughters of conjugants the progeny of conjugants are for a few generations a little larger than those of the members of the same race that have not conjugated. This seems transient.

5. The progeny of conjugants are also somewhat more variable than progeny of equivalent non-conjugants.

6. Hereditary differences may arise as a result of conjugation of individuals derived from a single individual; and sometimes even between the descendants of the 2 members of a pair.

EXPERIMENTS ON WHEAT RUST IN NORTH DAKOTA

In the Botanical Gazette (Sept., 1911) F. J. Pritchard makes a preliminary report on the origin and dissemination of the black rust of cereals (*Puccinia graminis*) in North Dakota. He reviews the literature of observation and experiment upon the subject and reports his own experiments with inoculation. He believes that the rust passes readily from the cereals to the barberry; that the aecidiospores and uredospores are probably not carried long distances by wind; that *P. graminis* does not appear to spread to the wheat by way of the grasses; that the form affecting wheat, that of barley, and that of rye and oats are apparently distinct biologically; that uredospores and the mycelium of the stalk do not survive winter conditions in North Dakota; that the grains of wheat are often infested by teleutospores which may in the spring pass thru a kind of palmella-like stage, and together with living mycelia in the grains infect the new, growing plant.